

Ethnomedicinal Uses of Ethiopian Traditional Medicinal Plants Used To manage some of Human Helminthic and Parasitic Disease: A Review

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Abstract

Background: Human Helminthic and parasitic infection are caused by soil-transmitted infection, neglected tropical disease, and Onchocerciasis. There are various ways of transmission for helminthic infection into a human host such as Ingestion of infective stage through faecal route, vector assisted transmission, direct skin penetration, congenital and contact of vector faecal with penetrated skin are the most common. 80% of the Ethiopian population has utilized traditional medicine as a primary choice of health care. The main aim of this review was to show Ethiopian medicinal plants used to manage helminthic and parasitic infections of humans.

Methods: Published article reviewed from databases search from Google scholar, science direct, Scopus, and pub med. The English language was applied for finding out published articles from the database by using the following terms anti-parasitic, anthelmintic, antimalarial, anti schistosomal, anti-intestinal worm, and Ethiopian medicinal plants. The tabular and diagrammatic presentation was used for clarifying and displaying findings from this reviewed study.

Results: In this presented study 343 medicinal plants were clarified for application of different human helminthic and parasitic infections. Having this leaf (24.27%) was the majority of plant parts used to treat the helminthic and parasitic infection when the diseases are encountered in the human host. Herbal remedies prepared with the aid of water accounted (38.50%), tea and coffee (10.40%), and decoction(10%) are mostly presented the way of plant preparation mentioned in the reviewed article.

Conclusion: Ethiopian population has higher experience in terms of utilization of traditional medicine as a primary choice of treatments. Fortunately, in this review, we try to present this community's experiences regarding human Helminthic and parasitic diseases. Therefore, it is an over-emphasized for the researcher to conduct a wide range of research on safety and efficacy on the traditionally claimed herbs with giving attention to certain human helminthic and parasitic diseases that already develop drug resistance.

Keywords: Anthelmintic; Antiparasitic; Medicinal plants; Helminthic; Parasitic disease

Introduction

Helminths live as parasites or free from the host in aquatic and terrestrial environments. There are several types; the most common in the world are intestinal nematodes or soil-borne worms (STH), Neglected tropical disease (NTD) including Schistosoma (a parasite of schistosomiasis), Leishmaniasis, Lymphatic filariasis (Elephantiasis), and onchocerciasis (river blindness) [1].

Different parasitic worm species cause helminth infections to spread through the soil (STH). *Ascaris lumbricoides*, *Trichuris trichiura* (whipworms), hookworms, and taeniasis are the most common dominated soil-transmitted helminthic infection. They're spread by eggs found in human faeces, which pollute soil in regions with inadequate sanitation. Children that have been infected are malnourished and physically weak [2]. According to the 2021 WHO Report; 1.5 billion individuals globally are affected by soil-transmitted helminthic infection [3].

Schistosomiasis is a parasitic disease caused by trematode worms of the *Schistosoma* genus, and it is one of the world's most neglected tropical diseases. It's Endemic in 70 developing countries; According to global estimates, at least 236.6 million people needed preventative care in 2019. *Schistosoma mansoni* is found in Africa, the Middle East, the Caribbean, Brazil, and Venezuela. *Schistosoma haematobium* has been found in Africa and the Middle East. *Schistosoma japonicum* is only found in China, Indonesia, and the Philippines [4].

Leishmaniasis is another dominant neglected tropical disease

caused by a group of protozoan parasites such as visceral leishmaniasis (VL, also known as kala-azar), post-kala-azar dermal leishmaniasis (PKDL), cutaneous Leishmaniasis (CL), and mucocutaneous Leishmaniasis [5]. Globally around 700,000 to 1 million new cases are reported annually. According to the WHO's global leishmaniasis surveillance in 2020, 98 (49 percent) of the 200 nations and territories that reported to WHO were endemic, with 6 having previously reported cases of leishmaniasis. Of the 200, 89 (45%) were CL endemic, 3 (2%) had previously reported CL cases, 79 (40%) were VL endemic, and 5 (3%) had previously reported VL cases [6].

Lymphatic filariasis (LF) is a preventable, severe, and disfiguring disease caused by infectious parasites called *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori* [7]. The 2020 WHO progress report on a global program to eliminate lymphatic filariasis indicated that filariasis 51.4 million people are estimated to be infected [8].

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Onchocerciasis is a parasitic disease caused by *Onchocerca volvulus* and it's a causative agent of river blindness. These parasites particularly affect the skin (subcutaneous tissue) and eyes leading to blindness in a minority of infected persons [10]. The 2017 Global Disease Burden Survey estimates that 20.9 million *O. volvulus* infections are widespread worldwide. 14.6 million Infected people suffered from skin disease and 1.15 million suffered from vision loss [10]. Human African trypanosomiasis or sleeping sickness is the last neglected tropical disease caused by trypanosome parasites transmitted by tsetse flies in subSaharan Africa. Two subspecies of *Trypanosoma brucei* cause illness: *Trypanosoma brucei gambiense* in West and Central Africa, and *Trypanosoma brucei rhodesiense* in East Africa [11]. Maintained control endeavours have decreased the number of new cases. In 2009 the number detailed dropped underneath 10 000 for the primary time in 50 years, and in 2019 there were 992 cases recorded globally [12].

Transmission of helminthic and protozoan infection

Regarding the transmission of parasitic and helminthic disease, there is broad range that takes place for Soil-Transmitted Helminthic, protozoan parasites, and neglected tropical diseases. Therefore infected food, water, and feco-oral transmission through swallowing of the parasitic infective stage through the mouth for ascariasis, wipe warm and hook worms. Having that parasites use intermediate vector host as biological (for completing their life cycle and transmission to the host) and for mechanical (only transmission of the parasites). Malaria *Leishmania* and Trypanosomiasis are grouped under this parasitic disease mainly transmitted with the aid of female anopheles mosquito, sand, and tsetse flies.

General overview of anti-parasitic drugs

Parasitic chemotherapies it has effectively treated and prevented most parasitic infections. Some drugs have adverse side effects and develop drug resistances on parasites and the community. Although some sort of expensiveness will show on most anti-parasitic drugs in a developing country. Having that most of the anti-parasitic drugs demand prolonged and parenteral route of administration and also they may be effective in disease state [13]. The challenges facing anti-parasitic drugs are; parasites are eukaryotic organism which is similar to the human host. Thus, therapeutics under this group of drugs are more effective in prokaryotic bacterial pathogens with higher selective toxicity than parasitic organisms [14].

Furthermore, the chronic stage of infection, the complex life cycle, different parasitic stages, limited choices of therapeutic for some single parasitic species, and development of drug resistance on certain parasitic disease and unproven utilization and application of medicinal plants as empirical treatments added into challenges of effective chemotherapeutic intervention [15]. The existence of multiple infectious diseases, gather possibility of reinfection, malnutrition, and HIV infection leading to immune-incompetency, poverty, and poor sanitation which enhance the transmission of the parasites are additional complicating factors in developing countries. Whereas the global strategies to prevent and treat the parasitic disease include scaling up of hygiene and sanitation, controlling of biological and mechanical vectors, application of vaccination, prophylactic and chemotherapies, and development of safe, effective with less cost anti-parasitic drugs though research and development are still overemphasized [16].

The pharmacological mechanism of antiparasitic drugs

Parasites are eukaryotic organisms and more similar to human hosts; phenomena like Carbohydrate metabolism, nucleic acid synthesis, and neuromuscular function are shared by the parasites and

the human host. For this reason, there is a challenge to developing the safe and effective anti-parasitic drug with the aid of biochemical differences between parasites and human hosts [17]. Fortunately, based upon our understanding and knowledge we recognized potential parasitic specific targets for chemotherapy of the parasites and genomic effort on protozoan parasites to identify potential drug targets for higher throughput screening [18].

Drug resistance associated with parasites infection

Considerations like Antimicrobial resistance for parasites are important as bacteria and fungi. Understanding the molecular and genetic mechanism of resistance developed by parasites is important for disease prevention and targeting chemotherapies. Although epidemiological and molecular understanding of the parasitic drug resistance is an indicator for a better application of current compounds and the development of novel anti-parasitic agents. Currently, some parasites such as plasmodium species, *Leishmania schistosomes*, and trypanosomiasis are some examples of parasites disease developing drug resistance.

Traditional medicine utilization in Ethiopia

When compared to contemporary medicine, almost 80% of Ethiopians rely on traditional medicine to address their healthcare needs, which can be related to cultural tolerance, perceived efficacy against certain ailments, physical accessibility, and affordability [19]. Little attempt was made in the country to accurately document the connected knowledge, attitude, and use of therapeutic herbs. Ethiopia is frequently cited as one of the six countries in the world where approximately 60% of plants are indigenous and have medicinal properties [20]. The general public is well-versed in Traditional Medicine. Traditional medicine has a high level of acceptance and prevalence in the country, which is due to its cultural tolerance, ease of accessibility, and affordability [21]. Another factor that contributed to the respondents' high incidence of TM usage was a lack of access to modern health services. The most popular sort of TM done in the population is the use of herbal medications [22]. This respected medicinal art has to be supported by documentation, giving well-organized information about the practice of the community for mass screening through scientific biomedical reverse pharmacology and biomedical research. The study aimed to review published articles on the ethno medicinal uses of Ethiopian traditional medicinal plants against different parasitic infections of humans.

Materials and methods

All included published article in this review was gathered from the scientific peer-reviewed journals such as (PubMed, Google scholar, Science direct, Scopus, Pubmed, springer, and nature) using the following word such as anti-parasitic, anti-helminthic, anti-malaria, anti-leishmania, anti-Schistosoma of Ethiopian medicinal plant used to manage helminthic and parasitic disease, ethno medicine and using other relevant words. English language article was the main source of information for this review. Lists of sources of eventually utilized articles were assessed for other important data to the sort of plant name, family, local name, parts used, preparation, and treating helminthic/ parasitic diseases.

Result

The search of Pub med, Google Scholar, Science Direct, Scopus, and Research Gate provided a total of 72 studies were conducted to assess the ethno botany of medicinal plants used to treat human helminthic diseases. While from each reviewed article, medicinal plants have an

Table 1: Shows Ethiopian traditional medicinal plants, plant parts, preparation of herbal remedies, and claimed types of helminthic and parasitic diseases.

Plant Name	Family	Local Name	Part Used	Preparation	Treating Helminthic Disease	References
<i>Dodonaea angustifolia</i>	Sapindaceae	Kitkita	Leaf	Prepared with salt and then taken orally	Tape Worm	Yirga G, Zeraburk S [23]
<i>Myrsine africana</i>	Myrsinaceae	kechemo	Seed	prepared with in jera orally	Tape Warm	Yirga G, Zeraburk S [23]
<i>Hagenia abyssinica</i>	Rosaceae	Koso	Leaf	Prepared with water and oral administration	Tape Warm	Yirga G, Zeraburk S [23]
<i>Datura stramonium</i> L	Solanaceae	Astenagir	Leaf	Rubbing and pain	Ring Worm	Mekuanent, et al. [24]
<i>Desmodium gangeticum</i> (L) DC	Fabaceae	Ye Gint Med Hanit	Root	Grinding the root and giving with swallowed	Avoiding Cattle Worm	Mekuanent, et al. [24]
<i>Embeliaschimperii</i> Vatke	Myrsinaceae	Enkoko	Fruit	Crashed and drinking 1 cup juice	Tape Warm	Mekuanent, et al. [24]
<i>Justicia schimperiana</i> (Hochst.ex A. Nees) T.Anders	Acanthaceae	Dummiuggae	Leaf	Pounded fresh/dry leaves is concocted with bark of <i>Croton macrostachyus</i> is taken orally for three days.	Intestinal Parasites	Mesfin, et al. [25]
<i>Carduus leptacanthus</i> Fresen	Asteraceae	Guccino	Stem	Powdered dry stem mixed with butter is taken with coffee or tea	Ascariasis	Mesfin, et al. [25]
<i>Lepidium sativum</i> L	Brassicaceae	Feaxxo	Seed	Dry seed powder is taken as with coffee as drink	Intestinal Parasites	Mesfin, et al. [25]
<i>Carica papaya</i> L	Caricaceae	Papaya	Seed	Chew and swallow seed	Intestinal Parasites	Mesfin, et al. [25]
<i>Croton macrostachyus</i> Del	Euphorbiaceae	Bissano	Exudates	Rubbing affected part by exudates of old leaves	Ring Worm	Mesfin, et al. [25]
<i>Euphorbia candelabrum</i> Kostshy	Euphorbiaceae	Addama	Latex	Milky latex from plant mixed with roots powder of <i>Ruta chalepensis</i> and paste applied to affected area	Ring Worm	Mesfin, et al. [25]
<i>Ficus ovata</i> Vahl	Moraceae	Shollae	Fruits	powder of dry fruits mixed with butter is applied after scratching the affected area	Ring Worm	Mesfin, et al. [25]
<i>Ensete ventricosum</i> (Welw) Cheesman	Musaceae	Warqo	Root	Crushed/pounded fresh root with water is taken orally	Amoebic Dysentery	Mesfin, et al. [25]
<i>Caylusea abyssinica</i> (Fresen) Fish & Mey	Resedaceae	Sheggitae	Root	Crushed/pounded fresh/dry root water is taken orally	Ascariasis	Mesfin, et al. [25]
<i>Hagenia abyssinica</i> (Bruce) J FGmel	Rosaceae	Kossae		Mix the powder with honey and a little bit of water and then boil and drink before breakfast for five days	Ascariasis	Mesfin, et al. [25]
<i>Prunus africana</i> (Hook.F) Kalkam	Rosaceae	T/Kaka	Root	Crushed/pounded dry root bark mixed with water is taken as a drink	Ascariasis	Mesfin, et al. [25]
<i>Capsicum annum</i> L	Solanaceae	Miximixo	Fruits	Chew and swallow fresh/dry fruits	Ascariasis	Mesfin, et al. [25]
<i>Euphorbia abyssinica</i> JF Gmel	Euphorbiaceae	Adaamii	Bark	Bark decoction is taken	Gastro-Intestinal, Ascaris, Gonohorea	Abera [26]
<i>Taverniera abyssinica</i> A. Rich	Fabaceae	Dingatanya	Root	root is tooting with teal	Internal Parasite	Abera [26]
<i>Glinus lotoides</i> L	Muluginaceae	Mataharree	Leafy Stem	Leafy-stem of <i>G lotoides</i> is crushed, powdered and liquefied and taken orally.	Intestinal Parasite	Abera [26]
<i>Securidica longipedunculata</i> Fresen	Polygalaceae	Etsamanaay (Amharic)	Root	Root is pounded and mixed with H ₂ O	Intestinal Parasite	Abera [26]
<i>Vernonia amygdalina</i> Del	Asteraceae	Dhebicha	Leaf	Drinking the decocted leaves with 1 cup of coffee for elders and half for children	Intestinal Worm	Jima, Megersa [27]
<i>Carica papaya</i> L	Caricaceae	Papaayee	Seed	Seeds ground and boiled with coffee and taken with honey	Ascariasis	Jima, Megersa [27]
<i>Jatropha curcas</i> L	Euphorbiaceae	Abatamuluk	Root	Root is crushed and drink with half cup of coffee	Intestinal Worm	Jima, Megersa [27]
<i>Ricinus communis</i> L	Euphorbiaceae	Qobboo	Root, Seed	Roots and seeds are crushed and drink with 1 cup of water	Intestinal Worm	Jima, Megersa [27]
<i>Solanum americanum</i> Mill	Solanaceae	Mujulo	Leaf	The dried leaf is crushed	Intestinal Worm	Jima, Megersa [27]
<i>Gnidia stenophylla</i> Gilg	Trymalaceae	Katarichaa	Root	The dried roots are crushed and mixed with water then taken for 2 days	Intestinal Worm	Jima, Megersa [27]
<i>Carica papaya</i> L	Caricaceae	Papaye	Seed	The seeds are dried and eaten	Ascariasis	Etana B [28]
<i>Caylusea abyssinica</i> (Fresen) Fisch, Mey	Resedaceae	Aranci	Root	Eaten with roasted barley	Intestinal Parasite	Etana B [28]

<i>Celosia trigyna</i> L	<i>Amaranthaceae</i>	Dagiso	Root	Squeezed and drunk 1 glass cup or eaten with roasted barley.	Tape Worm	Etana B [28]
<i>Colocasia esculenta</i> (L) Schott	<i>Araceae</i>	Godare	Root	Cooked and eaten	Ascaries	Etana B [28]
<i>Croton macrostachyus</i> Del	<i>Euphorbiaceae</i>	Makanisaa	Stem	Cooked with teff flour and eaten from 3- 5spoon.	Ascaries	Etana B [28]
<i>Cucurbita pepo</i>	<i>Cucurbitaceae</i>	Buqee/Dubaa	Seed	Roasted and eaten	Tape Worm	Etana B [28]
<i>Hagenia abyssinica</i> (Brace) J F Gmel	<i>Rosaceae</i>	Koso	Seed	Crushed and drunk with local drink 'tella'	Tape Worm	Etana B [28]
<i>Trichilia dregeana</i> Sond	<i>Meliaceae</i>	Anunu	Stem	Dried, powdered & eaten with raw meat from 3-5 times	Intestinal Parasite	Etana B [28]
<i>Crateva adansonii</i> Dc	<i>Capparidaceae</i>	Qollaadii	Root	Root of <i>Crateva adansonii</i> is pounded with root of <i>Ruta chalepensis</i> Three spoons are used as a drink	Intestinal Worms	Amenu E [29]
<i>Echinops kerebicho</i> Mesfin	<i>Asteraceae</i>	Qarabicho	Root	Root of <i>Echinops kerebicho</i> is dried powdered and mixed with water. Half of tea cup is given to human	Internal Parasite	Amenu E [29]
<i>Embelia schimperi</i> Vatke	<i>Myrsinaceae</i>	Haanquu	Seed	Seed of <i>Embelia schimperi</i> is dried and powdered, mixed with water, two glasses is taken once.	Tape Worm	Amenu E [29]
<i>Embelia schimperi</i> Oral Vatke	<i>Myrsinaceae</i>	Haanquu	Leaf	Leaf and seed of <i>Embelia schimperi</i> and leaf of <i>Croton macrostchys</i> are pounded together and one glass is taken by human.	Internal Parasite	Amenu E [29]
<i>Euphorbia lathryis</i> L	<i>Euphorbiaceae</i>	Hadaamii	Stem	2-3 drop of <i>Euphorbia lathris</i> sap is backed with teff and given to human	Ascaries (Maagaa)	Amenu E [29]
<i>Indigofera tinctoria</i> L Dermal	<i>Fabaceae</i>	Qoricha Dingetenya	Root	Root of <i>Indigofera tinctoria</i> chopped and mixed with salt and given to cattle.	Internal Prasites	Amenu E [29]
<i>Justica schimperiana</i> (Hochst ex Nees) T. Andres	<i>Acanthaceae</i>	Dhmuugaa	Leaf	Pounded leaf of <i>Justica Schimperian</i> is added to barely malt powdered. Three four glass of telle given to cattle, horse and donkey	Internal Parasites	Amenu E [29]
<i>Nicotiana tabacum</i> L	<i>Solanaceae</i>	Tamboo Nyaata	Leaf	Leaf of <i>Nicotiana tabacum</i> is pounded with root of <i>Carissa spinarum</i> and mixed with water. A cup of tella given to calf.	Internal Parasites	Amenu E [29]
<i>Syzygium guineense</i> (Willd)Dc	<i>Myrtaceae</i>	Baddessa	Bark	Bark of <i>Syzygium guineense</i> and exudates of <i>Aloe pubescens</i> concoction is made. 2-3 cup of coffee is taken by human.	Internal Parasite	Amenu E [29]
<i>Embelia schimperi</i> Vatke	<i>Myrsinaceae</i>	Enqoqo	Fruit	Crashed and drinking 1 cup juice	Tape Worm	Zerabruk, S, Yirga [30]
<i>Dodonaea angustifolia</i> Linn	<i>Sapindaceae</i>	Ketketa	Leaf	Crashed and mix with water; drinking orally	Tape Worm	Zerabruk, S, Yirga [30]
<i>Cicer arietinum</i>	<i>Fabaceae</i>	Shenbere	Seed	The seed of <i>Cicer arietinum</i> with root of <i>Kalanchoe petitiiana</i> is boiled, filtered and drunk the solution and seed of <i>Cicer arietinum</i> is eaten	Ascariasis	Abebe E [31]
<i>Cirsium englerianum</i>	<i>Asteraceae</i>	Kusheshele	Root	The root of <i>Cirsium englerianum</i> is pounded, powdered, mixed with water and drunk	Ascariasis	Abebe E [31]
<i>Croton macrostachyus</i>	<i>Euphorbiaceae</i>	Bisana	Bark	The 1/3 bark of <i>Croton macrostachyus</i> is crushed, powdered, mixed with <i>Cicer arietinum</i> powdered, water and backed than eaten before any food for 3 days	Ascariasis	Abebe E [31]
<i>Dovyalis abyssinica</i>	<i>Flacourtiaceae</i>	Koshime	Fruit	Its fruit is eaten as food for the case of intestinal parasite before break fast every morning	Intestinal Parasites	Abebe E [31]
<i>Hagenia abyssinica</i>	<i>Rosaceae</i>	Kosso	Seed	The seed of <i>Hagenia abyssinica</i> is crushed, powdered mixed with milk and boiled and drink for 5 days	Tape Worm	Abebe E [31]
<i>Kalanchoe petitiiana</i>	<i>Euphorbiaceae</i>	Endawula	Root	The root of <i>Kalanchoe petitiiana</i> with seed of <i>Cicer arietinum</i> is boiled, filtered and drunk and seed of <i>Cicer arietinum</i> is eaten	Ascariasis	Abebe E [31]
<i>Rosa abyssinica</i>	<i>Rosaceae</i>	Kego	Seed	The raw seed of <i>Rosa abyssinica</i> is eaten	Ascariasis And Stomachache	Abebe E [31]

<i>Rumex nepalensis</i>	<i>Polygonaceae</i>	Yewusha Lut	Root	The root of <i>Rumex nepalensis</i> is dig by using sliver ring and pounded, squeezed, added little water and then drunk before food and Friday	Ascariasis	Abebe E [31]
<i>Euphorbia ampliphylla</i>	<i>Euphorbiaceae</i>	Qulquale	Sap/Latex	The drop of latex is collected, mixed with "teff" powdered or honey and backed and then eaten before any food	Stomach Problem And Ascariasis	Abebe E [31]
<i>Otostegia integrifolia</i>	<i>Lamiaceae</i>	Tungut	Leaf	The leaf of <i>Otostegia integrifolia</i> is pounded, powdered, mixed with milk and boiled and then drunk is cooled	Ascariasis	Abebe E [31]
<i>Echinops kebericho</i>	<i>Asteraceae</i>	Kabar Icho	Root	Powdering with seed of <i>Lipidium sativum</i> and <i>Brassica nigra</i> eating during meal	Worms, Ascaries	Ayana [32]
<i>Brassica carinata</i> A.Br.	<i>Brassicac Eae</i>	Gome Nze	Seed	Pounding the seed of with <i>Linumusatissimum</i> bulbs of <i>Allium sativum</i> and rhizobium of <i>Zingiber officinale</i> then eating.	Ameoba ,Malaria, Worms	Ayana [32]
<i>Cocinia abyssinica</i>	<i>Cucurbita Pepo L</i>	Buqe	Seed	Roasting powdering and giving	Ascaries	Ayana [32]
<i>Croton macrostachy us. Del.</i>	<i>Euphorbac Eae</i>	Makani Sa	Tip Part	Crushing odd tips then drunk few	Ascaries	Ayana [32]
<i>Vigna sp</i>	<i>Fabaceae</i>	Ab Dus Alib	Root	Pounding then adding one spoon to tea or coffee then drunk one cup once.	Worms	Ayana [32]
<i>Ximenia americana</i> L	<i>Olacacea E</i>	Hudh Ae	Root	Pounding mix with honey eating, two spoon every morning until healed.	Worms,In Ternal Pain, Qora	Ayana [32]
<i>Hagenia abyssinica</i> (Bruce) JF Gmel	<i>Rosaceae</i>	Ducha /Koso.	Fruit	Crushing with tips of <i>croto macrostachyus</i> then add water drunk one glass.	Tape Worms	Ayana [32]
<i>Clematis simensis</i> Fresen	<i>Ranunculaceae</i>	azohareg	Root	Leaves are crushed, filtered and drinking and applied on the affected part using cotton though dermal	Intestinal Parasite and leshemanieasis	Alemayehu G [33]
<i>Rumex abyssinicus</i> Jacq	<i>Polygonaceae</i>	Dhangagoo	Root	Dry roots are grounded, boiled in water and drunk with tea for three days	Ascariasis	Alemayehu G [33]
<i>Aloe sp</i>	<i>Aloaceae</i>	Argissa	Leaf Latex	Fresh leaf latex taken orally	Internal Parasites	Tamene S [34]
<i>Arundo donax</i> L	<i>Poaceae</i>	Lemicho	Leaf	Dry leaves crushed and pounded with water, and then drunk in the morning Dry leaves crushed and pounded and then parted on the wound	Intestinal Parasites Wound	Tamene S [34]
<i>Carica papaya</i> L	<i>Caricaceae</i>	Papaya	Leaf	Fresh leaves are boiled with water and cooled then drunk in the morning	Intestinal Parasites	Tamene S [34]
<i>Cucurbita pepo</i> L	<i>Cucurbitaceae</i>	Baqula	Seeds	Dry seeds are cocked and eaten in the morning.	Tape Worm And Ascaries	Tamene S [34]
<i>Euphorbia ampliphylla</i> Pox	<i>Euphorbiaceae</i>	Care	Latex	Latex mixed with butter taken orally	Intestinal Parasites	Tamene S [34]
<i>Lagenaria siceraria</i> (Molina) Standl	<i>Cucurbitaceae</i>	Surupha	Seeds	Dry seeds pounded with water, and then drunk two times a day	Intestinal Parasites	Tamene S [34]
<i>Leucas tomentosa</i> Gurke	<i>Lamiaceae</i>	Balbalato	Leaf	Fresh leaves mixed with <i>Ocimum urticifolium</i> chewed and swallowed in the morning	Intestinal Parasites	Tamene S [34]
<i>Melia azedarach</i> Forssk	<i>Meliaceae</i>	Kiniin	Root	Chewing and swallowing the juice of fresh root	Intestinal Parasites	Tamene S [34]
<i>Momordica boivinii</i> Bail	<i>Cucurbitaceae</i>	Kiree	Leaf	Fresh leafs crushed, pounded and filtered, then mixed with goat milk and drunk in the morning	Intestinal Parasites	Tamene S [34]
<i>Olea europea</i> subsp <i>Cuspidat a</i> (Wall ex G Don) Cif	<i>Oleaceae</i>	Ejerssa	Leaf	Fresh leaves boiled and the infusion drunk in the morning	Intestinal Parasites	Tamene S [34]
<i>Rumex abyssinicus</i> Jacq.	<i>Polygonaceae</i>	Shishone	Root	Fresh roots pounded and boiled and then mixed with milk and drunk in the morning for two days	Amoeba Intestinal Parasites	Tamene S [34]
<i>Solanum incanum</i> L	<i>Solanaceae</i>	Borbodho	Root	Fresh root chewed and swallowed	Intestinal Parasites	Tamene S [34]
<i>Solanum nigrum</i> L	<i>Solanaceae</i>	Xunayee	Leaf	Fresh leaves cocked and eaten as vegetables	Intestinal Parasites	Tamene S [34]

<i>Brucea Antidysentrica</i> JF Mill	<i>Simarou Baceae</i>	Qomany O	Leaf	Crushed with Leaves of <i>Bersema abyssinica</i> and cooked With porridge and given for children	Ascaris	MegersaM [35]
<i>Calpurnia aurea</i> (Ait) Benth	<i>Fabaceae</i>	Ceekaa	Leaf	9 juvenile leaves of <i>Calpurnia aurea</i> 9 leaves of <i>Senna occidentalis</i> and 9 juvenile leaves of <i>Clausena anisata</i> smashed and the extracts taken. One cup of tea is given for man and half cup for Children	Ascaris	MegersaM [35]
<i>Carica papaya L</i>	<i>Caricacea E</i>	Paappaay Yaa	Seed	Seed chewed and swallowed	Intestinal Parasite	MegersaM [35]
<i>Catha edulis</i> (Vahl) Forssk ex Endl	<i>Celactraceae</i>	Chate	Leaf	Crashed, boiled in water and the solution drun	Intestinal Parasite	Alemayehu, et al. [36]
<i>Osyris quadripartita</i>	<i>Santalaceae</i>	Keret	Leaf	Powdered, mixed in water	Intestinal Parasite	Alemayehu, et al. [36]
<i>Croton macrostachyus</i>	<i>Euphorbiaceae</i>	Mokkoniisaa	Bark	Crushing the bark, boiling it and giving one coffee cup for humans and one water glass for livestock to eradicate tapeworm.	Tapeworm	Alemayehu, et al. [36]
<i>Embelia schimperii</i>	<i>Myrsinaceae</i>	Haanquu	Seed	Crushing the seeds, making s/n and drinking/ giving one water glass.	Tapeworm	Ashagre, et al. [37]
<i>Hagenia abyssinica</i>	<i>Rosaceae</i>	Heexo	Seed	Crushing the seeds, making s/n and giving one water glass for adult humans	Tapeworm	Ashagre, et al. [37]
<i>Haplocoelum foliolosum</i>	<i>Sapindaceae</i>	Canaa	Seed	Chewing a handful of ripened seeds and swallowing it.	Ascaris (Maagaa)	Ashagre, et al. [37]
<i>Catha edulis</i> (Vahl) Forssk ex Endl	<i>Celactraceae</i>	Chate	Leaf, Bark	Decoction	Anthelmatic	Wabe, et al. [38]
<i>Embelia schimperii</i>	<i>Myrsinaceae</i>	Enkoko	Fruit	Drinking Concoction	Taenicide	Wabe, et al. [38]
<i>Glinus lotoides</i>	<i>Molluginaceae</i>	Metera	Fruit	Drinking Decoction	Taenicide	Wabe, et al. [38]
<i>Haygenia Abyssinica</i>	<i>Rosaceae</i>	Koso	Fruit	Drinking Concoction	Taenifuge	Wabe, et al. [38]
<i>leonotis ocyimifolia</i>	<i>Lamiaceae</i>	Ras-kimir or Yeferes Zeng	Leaf	Drinking Concoction	Ascaricide	Wabe, et al. [38]
<i>Ocimum lamifolium</i>	<i>Lamiaceae</i>	Dema kese	Leaf	Concoction	Anthelmintic	Wabe, et al. [38]
<i>Ocimum sp</i>	<i>Lamiaceae</i>	Besso bila	Leaf	Vegetable drug, decoction	Taenicide, Fever	Wabe, et al. [38]
<i>Albezia anthelimentica</i>	<i>Fabaceae</i>	Hawaachoo	Bark	Chew up the fresh bark of the root of the plant by the local healer and then spit to the mouth of the animal about 1 teaspoonful, every day for 2 days	Internal Parasite	Eshetu, et al. [39]
<i>Albuca spp</i>	<i>Amaryllidaceae</i>	Rada Waqa	Bulb	fresh bulb (root) of the plant is ground and squeezed then 1 teaspoonful squeezed liquid added to 1 cup of water and is given 2 cup of the preparation through nose morning and evening for 4 days	Internal Parasite	Eshetu, et al. [39]
<i>Allium sativum L</i>	<i>Amaryllidaceae</i>	Qullubbii Adii	Bulb	After pounding the bulb, add water, and filter then give through mouth and nose	Mastitis, Diarrhea, Internal Parasite	Eshetu, et al. [39]
<i>Erythrina brucei</i> Schwein	<i>Fabaceae</i>	Welanko	Leaf	The fresh leaf is pounded and add 1 cup of water	Internal Parasite	Eshetu, et al. [39]
<i>Leucas deflexa</i> Hook f	<i>Lamiaceae</i>	Qechemen	Leaf	-----	Ascariasis (Wesfat)	Giday, et al. [40]
<i>Azadirachta indica</i> A Juss	<i>Meliaceae</i>	Kinina	Seed,Leaf	Mixture of leaf infusion and oil extracted from seed taken oral as anthelmintic	Intestinal Parasites	Belayneh, A, Bussa, NF [41]
<i>Dodonaea angustifolia</i> Lf	<i>Sapindaceae</i>	Edecha	Leaf	Fresh leaf extract taken oral as anthelmintic	Intestinal Parasites	Belayneh, A, Bussa, NF [41]
<i>Kleinia squarrosa</i> Cufod	<i>Asteraceae</i>	Luko	Stem	Crush and taken oral as anthelmintic	Intestinal Parasites	Belayneh, A, Bussa, NF [41]
<i>Ozoroa insignis</i> Delile	<i>Anacardiaceae</i>	Salvano	Stem Bark	Directly uses Orally	Ascariasis	Kidane, et al [42]
<i>Balanites rotundifolia</i> (van Tieghem) Blatter	<i>Zygophyllaceae</i>	Kuze	Leaf	-----	Ascariasis, Food Poisoning ,Vomiting	Kidane, et al [42]
<i>Acanthus sennii</i> Chiov*	<i>Acanthaceae</i>	Key Kusheshilie	Root	Pound, immerse in water then drink the Juice	Tape Worm	Chekole, et al.[43]
<i>Achyranthes aspera L.</i>	<i>Amaranthaceae</i>	Telenj	Root	Crush, insert in water then Drink	Tape Worm	Chekole, et al.[43]

<i>Alysicarpus quartiniatus</i> A Rich	Fabaceae	-----	Root	Crush then drink with milk	Ascaris	Chekole, et al.[43]
<i>Bersama abyssinica</i> Fresen	Meliantaceae	Azamir	Leaf	Crush and powder, boil with tea then drink juice	Ascaris	Chekole, et al.[43]
<i>Buddleja polystachya</i> Fresen	Loganiaceae	Anfar	Leaf	Crush and powder, immerse in TEJ then drink the juice	Intestinal Parasite	Chekole, et al.[43]
<i>Celosia trigyna</i> L	Amaranthaceae	Lemlemcho	Seed	Grind and drink with water	Tape Worm	Chekole, et al.[43]
<i>Commelina latifolia</i> Hochst ex A Rich.	Commelinaceae	Yewuha Enkur	Leaf	Crush and powder then cream with butter	Taenia Scaplis	Chekole, et al.[43]
<i>Croton macrostachyus</i> Del	Euphorbiaceae	Misana	Bark	Crush, pound, then drink juice	Tape Worm	Chekole, et al.[43]
<i>Croton macrostachyus</i> Del	Euphorbiaceae	Misana	Leaf	Boil, grind, make it wote (soupe) with butter then eat with enjera	Tape Worm	Chekole, et al.[43]
<i>Cynodon dactylon</i> (L) Pers	Poaceae	Serdo	Leaf & Stem	Drink the Concoction	Tape Worm	Chekole, et al.[43]
<i>Dodonaea angustifolia</i> Lf	Sapindaceae	Kitkita	Root & Leaf	Pound, immerse in water and drink the diluted mixture	Tape Worm	Chekole, et al.[43]
<i>Dodonaea angustifolia</i> Lf	Sapindaceae	Kitkita	Leaf & Stem	Drink the Concoction	Tape Worm	Chekole, et al.[43]
<i>Embelia schimperi</i> Vatke*	Myrsinaceae	Enkoko	Flower	Eat fresh or crush and drink with 'tela didif'	Tape Worm	Chekole, et al.[43]
<i>Justicia schimperiana</i> (Hochst Ex Nees) T Anders	Acanthaceae	Smiza	Leaf,Stem	Drink the concoction	Tape Worm	Chekole, et al.[43]
<i>Kalanchoe laciniata</i> L	Crassulaceae	Endahula	All Part	Boil with <i>Cicer Arietinum</i>	Tape Worm	Chekole, et al.[43]
<i>Laggera crispata</i> (Vahl) Hepper & Wood	Asteraceae	Keskesso/ Alshasume	Leaf	Crush and drink with Water	Tape Worm	Chekole, et al.[43]
<i>Prunus persica</i> (L) Batsch	Rosaceae	Kok	Leaf Stem	Drink the Concoction	Tape Worm	Chekole, et al.[43]
<i>Withania somnifera</i> (L) Dunal in DC	Solanaceae	Giziewa	Leaf	Fumigate in a closed Fashion	Tape Worm & Babies Disease	Chekole, et al.[43]
<i>Allium sativum</i> L	Aliacea	Qullubbi Adii	Root	Root powder with the root powder of <i>Ajuga integrifolia</i> , <i>Allium sativum</i> , and <i>Rumex nepalensis</i> concocted together and drunk once before breakfast	Ascariasis	Kefalew, et al. [44]
<i>Aloe macrocarpa</i> Tod	Lamiaceae	Argiisa/Ret	Leaf	Leaf chewed and swallow the juice	Intestinal Parasite	Kefalew, et al. [44]
<i>Carissa spinarium</i>	Asteraceae		Root	Root grounded, dissolve in water and drunk	Intestinal Worms	Kefalew, et al. [44]
<i>Embelia schimperi</i> Vatke	Myrsinaceae	Hanquu/ Enqoqo	Fruit	Fruit is powdered, dissolve in water, decant out the decoction and drunk early morning before meal	Tape Worm (Kosso)	Kefalew, et al. [44]
<i>Grewia ferruginea</i> Hochst ex A Rich	Malvaceae	Dhoqonuu/ Lenquata	Bark	Fresh bark boiled together with fruit of <i>Hagenia abyssinica</i> , and the solution drunk	Taeniasis (Kosso)	Kefalew, et al. [44]
<i>Myrica salicifolia</i> A Rich	Myriceae	Kataba/Shinet	Root	Water solution of the root infusion is given orally	Ascariasis	Kefalew, et al. [44]
<i>Myrsine africana</i> L	Myrsinaceae	Qacama/ Kechem	Fruit	Fruit grounded and concocted with powder fruit of <i>Hagenia abyssinica</i> and the solution drunk	Taeniasis	Kefalew, et al. [44]
<i>Plantago lanceolata</i> L	Plantaginaceae	Qorxobbii/ Yehaheya Kote/	Leaf	Leaf grounded, boiled with fruit of <i>Solanum anguivi</i> and the concoction mixed with atela (by-products of tella) and given to the animal	Intestinal Parasites	Kefalew, et al. [44]
<i>Bersama abyssinica</i>	Meliantaceae	Loichiisaa	Root,	Decoction vegetable drug	Taeniafuge	Abera B [45]
<i>Catha edulis</i>	Celastraceae	Caatii	Bark	Decoction	Anthelmatic Psychoactive	Abera B [45]
<i>Croton macrostachyas</i>	Euphorbiaceae	Bakkanniisa	Leaf	Vegetable drug & decoction	Taenicide,	Abera B [45]
<i>Glinus Lotoides</i>	Molluginaceae	Metire	Fruit	Decoction	Taenicide,	Abera B [45]
<i>Hagenia abyssinica</i>	Rosaceae	Kossoo	Fruit	Concoction	Taenifuge	Abera B [45]
<i>Leonotis ocymifolia</i>	Lamiaceae	Raasqamir	Leaf	Concoction	Ascaricide	Abera B [45]
<i>Ocimum lamifolium</i>	Lamiaceae	Damakasee	Leaf	Concoction	Anthelmintic	Abera B [45]
<i>Ocimum sp</i>	Lamiaceae	Ancabbii	Leaf	Vegetable drug, Decoction	Taenicide, Fever	Abera B [45]
<i>Zingibel officinale</i>	Zingiberaceae		Root	-----	Anthelmintic	Abera B [45]
<i>Hagenia abyssinica</i> (Bruce) J.F.Gmel	Rosaceae	Kosso	Seed	Dry seed ground into powder, mixed with local alcohol ("tella"), and drunk.	Tape Worm	Amsalu, et al. [46]
<i>Jasminum abyssinicum</i> L	Oleaceae	Tenbelel	Leaf	Fresh leaves crushed, squeezed mixed with water, and decanted and then drunk without having food.	Tape Worm	Amsalu, et al. [46]

<i>Justicia schimperiana</i> (Hochst. ex Nees) T Anders	Acanthaceae**	Smiza	Leaf	Dry leaves are crushed and pounded with water and then one glass is drunk	Abdominal Parasite	Amsalu, et al. [46]
<i>Vernonia amygdalina Del</i>	Asteraceae	Girawa	Leaf	Juice is extracted from fresh leaf and taken orally (one cup).	Intestinal Parasite	Amsalu, et al. [46]
<i>Vernonia amygdalina Del</i>	Asteraceae	Dhebicha	Leaf	Drinking the decocted leaves with 1 cup of coffee for elders and half for children	Intestinal Worm	Jima TT, Megersa M [47]
<i>Carica papaya L</i>	Caricaceae	Papaayee	Seed	Seeds ground and boiled with coffee and taken with honey	Ascariasis	Jima TT, Megersa M [47]
<i>Ricinus communis L</i>	Euphorbiaceae	Qobboo	Root/Seed	Roots and seeds are crushed and drink with 1 cup of water	Intestinal Worm	Jima TT, Megersa M [47]M.
<i>Gnidia stenophylla Gilg</i>	Trymalaceae	Katarichaa	Root	The dried roots are crushed and mixed with water then taken for 2 days	Intestinal Worm	Jima TT, Megersa M [47]
<i>Bersama abyssinica</i> Fresen	Meliantaceae (GG64)	Azamir	Leaf	Fresh leaf boiled with milk and potato is given orally	Ascariasis	Gebeyehu, et al. [48]
<i>Brucea antidysenterica</i> JF Mill	Simaroubaceae (GG07)	Abalo	Root	Dried root and <i>Phytolaca dodecandra</i> leaf powdered, mixed with water is given orally	Hookworm	Gebeyehu, et al. [48]
<i>Embelia schimperii</i> Vatke	Myrsinaceae (GG35)	Enkoko	Fruits	Dried fruit soaked with local beer is given orally	Tape Worm	Gebeyehu, et al. [48]
<i>Hagenia abyssinica</i> (Bruce) J F Gmel	Rosaceae (GG89)	Kosso	Fruit	Dried fruit powder cooked with food is given orally	Tape Worm	Gebeyehu, et al. [48]
<i>Hageniabyssi nicabruce</i> J F gmelin	Rosaceae	Kosso	Flower	The flower is dried, crushed and boiled in Water	Taeniasis	Dugassa, et al. [49]
<i>Clausena arisata</i> Hook F	Rutaceae	Metene (Temenne) (O)	Leaf	The decocted leaf is drunk	Ascariasis	Dugassa, et al. [49]
<i>Carissaedulisvehl</i>	Apoltnaceae	Agamsa (O)	Fruit	The fruit is eaten	Ascariasis	Dugassa, et al. [49]
<i>Myrsine Africana L</i>	Myrsinaceae	Kechama (O)	Flower	The flower is dried, powder and boiled in Water	Ascariasis And Taeniasis	Dugassa, et al. [49]
<i>Cucurbita pepo L</i>	Cucurbitaceae	Buqee(O) Dubaa(A)	Seed	The seed is roasted and chewed	Taeniasis	Dugassa, et al. [49]
<i>Ajuga alba</i> (Gurke) Robyni	Lamiaceae	Anamuro	Leaf	dried leaves Decocted	Ascariasis	Yineger, et al. [50]
<i>Euphorbia depauperata</i> A Rich.	Euphorbiaceae	Guri	Root, Stem Bark	Fresh parts are Crushed, Decocted	Ascariasis	Yineger, et al. [50]
<i>Calpurnea aurea</i> (Alt) Benth	Papilionaceae	Cekkatta (Sd)	Seed	Crushed and swallowed	Ascariasis	Regassa R [51]
<i>Cucurbita pepo L</i>	Cucurbitaceae	Baaqula (Sd)	Seed	Dried on fire and chewed for pregnancy women, powdered and drank by others	Tape Worm	Regassa R [51]
<i>Eucalyptus globulus</i> Labill	Myrtaceae	Nechbahirzaf (Am)	Leaf	Boil and drink before breakfast	Malaria, Typhoid , Ascariasis And Acute Sickness	Regassa R [51]
<i>Hagenia abyssinica</i> (Bruce) J F Gmel.	Rosaceae	Koso (Am)	Leaf	fresh leaves Crushed ,powdered ,add water and drink	Tape Worm	Regassa R [51]
<i>Hagenia abyssinica</i> (Bruce) J.F Gmel	Rosaceae	Koso (Am)	Seed	dried seeds Pounded, powdered ,mixed with water stay overnight drink before breakfast	Tape Worm	Regassa R [51]
<i>Ruta chalpensis L</i>	Rutaceae	Sunkuruut (Wa)	Leaf	Grind fresh leaves with <i>Zingiber officinale</i> , add water and drink	Gonorrhoea And Ascariasis	Regassa R [51]
<i>Brucea antidysentrica</i> JF Mill Shureshuupiya	Solanaceae	Shureshuupiya (Wa)	Root	crushed and taken	Parasitic Disease In Children	Andarge, et al. [52]
<i>Cuscuta reflexa</i>	Convulvulaceae	Has'emamito (Wa)	Leaf	crushed/decocted	Internal Parasites/ Worms	Andarge, et al. [52]
<i>Embelia schimperii</i>	Myrsinaceae	K'uank'uula (Wa)	Fruit	crushed mixed with water and taken orally before breakfast	Tape Worm	Andarge, et al. [52]
<i>Erythrina brucci</i>	Fabaceae	Bortuwa-Geziyawa(Wa)	Bark	crushed or powdered fresh mixed with water and taken	Ascaris, Stomach Ache	Andarge, et al. [52]
<i>Hagnia abyssinica</i>	Rosaceae	Soyid'uwa(Wa)	Fruit	crushed and mixed with water taken	Tape Worm	Andarge, et al. [52]
<i>Maesa lanceolata</i>	Myrrecenaceae	Gegec'uwa (Wa)	Bark	crushed or powdered fresh mixed with water and taken	Ascaris, Stomach Ache	Andarge, et al. [52]
<i>Rumex abyssinicus</i>	Polygonaceae	C'olieya (Wa)	Root	decocted and half of a cup it taken	Ascaris,	Andarge, et al. [52]
<i>Syzygium guineense</i>	Myrtaceae	Ocha (Wa)	Bark	crushed or powdered fresh mixed with water decocted and taken	Ascaris, Stomach Ache; Abdominal Pain	Andarge, et al. [52]
<i>Thalictrum rhynchocarpum</i>	Ranunculaceae	-----	Root	crushed and mixed with milk applied	Ascariasis	Andarge, et al. [52]

<i>Bersama abyssinica Fresen</i>	<i>Melanthaceae</i>	Lolchisa	Leaf	Stem tips chopped in to 4-5 pieces (each 1 inch), cooked with bean seed and eaten in empty stomach every morning for 2 consecutive days.	Ascariasis	Andarge, et al. [52]
<i>Carissa spinarum L</i>	<i>Apocynaceae</i>	Agamsa	Seed	The seed (20-30 in number) cooked and eaten early in the morning to the empty stomach; only once	Ascariasis	Tolasa E [53]
<i>Croton macrostachyus Del</i>	<i>Euphorbiaceae</i>	Bakkanisa	Leaf	The tips shoot with tip shoot of <i>Justicia schimperian</i> powdered and baked with bread and eaten as a breakfast for a week.	Hook Worm	Tolasa E [53]
<i>Croton macrostachyus Del</i>	<i>Euphorbiaceae</i>	Bakkanisa	Leaf	The latex from young tip is collected and applied in thick to the affected area every Wednesday and Friday.	Tinea Corporis (Robi)	Tolasa E [53]]
<i>Euphorbia condelabrum Kostshy</i>	<i>Euphorbiaceae</i>	Adami	Latex	Five-seven drops collected, baked with one cup of wheat powder and eaten to the empty stomach for 5 days.	Gonorrhoea & Ascariasis	Tolasa E [53]
<i>Euphorbia tirucalli L</i>	<i>Euphorbiaceae</i>	Cada	Latex	The latex is uniformly (in thin) painted on affected area for few days in strong sunlight or near the hot fire.	Tinea Versicolor (Balale)	Tolasa E [53]
<i>Flacourtia indica (Burm.f.) Merr</i>	<i>Flacourtiaceae</i>	Akuku	Bark	The bark ground along with bulb of <i>Allium sativum</i> and tip shoot of <i>Croton macrostachyus</i> . Then 3 spoons are taken once a day for 7-10 days.	Gonorrhoea, Amoeba And Hook Worm	Tolasa E [53]
<i>Glinus lotoides L</i>	<i>Aizoaceae</i>	Wagarti	Seed	The seed is pounded together with little salt, made in to paste and eaten early in the morning. The food and water are banned for 6- hours before as well as after medication	Tape Worm Infestation	Tolasa E [53]
<i>Vernonia amygdalina Del</i>	<i>Asteraceae</i>	Ebicha	Leaf	The leaf is used as a soap to wash the whole body. The leaf infusion is made and drunk ½-tea cup before breakfast. Food and water are eschewed for 5 hours.	Flariasis Ascariasis	Tolasa E [53]
<i>Albiziaanthelmintica (A. Rich.) Brongn</i>	<i>Fabaceae</i>	Bsana	Bark	prepare by mixing with food	Tapeworm	Tewelde, et al.[54]
<i>Pittosporum abyssinicum</i>	<i>Pittosporaceae</i>	Sholla/ Mitashiya	Bark	Cut	Ascaris	Agize, et al. [55]
<i>Premna schimperi</i>	<i>Lamiaceae</i>	Caawula	Leaf	Pound	Ascaris, Severe Abdominal Pain; Leech Expel; Malaria	Agize, et al. [55]]
<i>Pycnostachys abyssinica</i>	<i>Lamiaceae</i>	Olomuwa	Leaf	Chopped; pound; Heat	Ascaris; Wound Healing; Eye Disease	Agize, et al. [55]
<i>Rumex abyssinicus</i>	<i>Polygonaceae</i>	C'oli'iya	Root	Chopped, Pounded	Ascaris, For All Intestinal Parasites; Liver Infection, Gonorrhoea	Agize, et al. [55]
<i>Spilanthus mauritiana</i>	<i>Asteraceae</i>	Ayiddamiya	Flower,Leaf	Chopped, ; Chewed	Ascaris, Stomachache; Tonsillitis, Ear Ache, Milk Teeth Problem; Toothache	Agize, et al. [55]
<i>Tamarindus indica</i>	<i>Fabaceae</i>	Koriya	Fruit	Cut, raw washed	Ascaris	Agize, et al. [55]
<i>Jatropha curcas</i>	<i>Euphorbiaceae</i>	Miiimiya/ Atiiyaa/F Aranje-S'eema	Root, Sap	Chopped, pound; Cut	Tape Worm; Clotting Blood, Wound Healing	Agize, et al. [55]
<i>Embelia schimperi</i>	<i>Poaceae</i>	K'ank'k'uwa	Fruit, Root	Chopped, pound, heated	Kidney Problem, Tape Worm And Liver Cirrhosis; Leech Expel	Agize, et al. [55]

<i>Euphorbia hirta</i>	<i>Euphorbiaceae</i>	Shatomaataa	Whole Part, Root	Chopped, Pound; cut	Blackleg, Rheumatism; Diarrhea (Shigella); Stomachache; Intestinal Parasite; Tenea Captious	Agize, et al. [55]
<i>Euphorbia candelabrum</i>	<i>Euphorbiaceae</i>	K'aak'a (Gad'awa)	Sap	Rolled inside tef bread	Ascaris, Gonorrhoea, Diarrhea	Agize, et al. [55]
<i>Celosia trigyna</i>	<i>Amaranthaceae</i>	Majoliya (Zarggula)	Leaf, Root	Chopped, pounded	Tapeworm Expellant; Blood Clotting	Agize, et al. [55]
<i>Carduus chamaecephalus</i>	<i>Asteraceae</i>	Kashiya (Geziyawa)	Leaf, Root	Chopped, Pounded	Ascaris	Agize, et al. [55]
<i>Artemisia afra</i>	<i>Asteraceae</i>	Agupiya	Leaf	Chewed	Stomach Ache, Ascaris	Agize, et al. [55]
<i>Embelia schimperi</i> Vatke	<i>Myrsinaceae</i>	Enkoko	Fruit	To expel tape worm, the ground fruit is macerated in tela (local alcoholic beverage) or water and left over night, and then the macerate is drunk in an empty stomach	Tape Worm	Gedif T, Hahn HJ [56]
<i>Hagenia abyssinica</i> (Bruce) Gmel	<i>Rosaceae</i>	Kosso	Flower	To expel tape worm, water/local alcoholic extract of the flower is drunk in the morning in an empty stomach or the flower is pasted with honey and taken	Tape Worm	Gedif T, Hahn HJ [56] [56]
<i>Berchemia discolor</i> (Klotzsch)Hems l..	<i>Rhamnaceae</i>	Jajaba	Leaf	Leaf concoction is mixed with honey, warm the solution and drunk.	Hook Worm	Giday, et al. Gebrehiwot M [57,58]
<i>Bersama abyssinica</i> Fresen.	<i>Meliantaaceae</i>	Lolchiisaa	Bark	Fresh bark is pounded, pasted with honey and is eaten.	Ascariasis,	Giday, et al. Gebrehiwot M [57,58]
<i>Cadaba farinosa</i> Forssk	<i>Capparidaceae</i>	Qalqalcha	Root	Fine powder of root is mixed with honey and eat a tea spoon a day for four days every morning.	Intestinal Parasite	Giday, et al. Gebrehiwot M [57,58]
<i>Croton macrostachyus</i> Del	<i>Euphorbiaceae</i>	Bakkanisa	Leaf	The tip of fresh young leaf and the bark is pounded, boiled, add butter, cool it and after it solidifies, three – nine tablets are made and three tablets for children, five to nine tablets for elders is given. Milk is drunk as an antidote	Ascariasis,	Giday, et al. Gebrehiwot M [57,58]
<i>Cucurbita pepo</i> L	<i>Cucurbitaceae</i>	Debaquulaa	Seed	Bloat Seeds are soaked in water overnight, chew and swallowed as they are .	Hookworm	Giday, et al. Gebrehiwot M [57,58]
<i>Dodonea angustifolia</i> Lf	<i>Sapindaceae</i>	Iticha	Seed	Grounded, pasted with oat flour, bake and give to the animal.	Intestinal Parasite	Giday, et al. Gebrehiwot M [57,58]
<i>Embelia schimperi</i> Vatke	<i>Myrsinaceae</i>	Haanquu	Seed	Seeds are grounded, mixed with water and left over night and is drunk	Taeniasis	Giday, et al. Gebrehiwot M [57,58]
<i>Euclea racemosa</i> Murr	<i>Ebenaceae</i>	Mi'eessaa	Root	Crushed root is boiled and drunk with sugar.	Internal Parasite	Giday, et al. Gebrehiwot M [57,58]
<i>Euphorbia abyssinica</i> Gmel	<i>Euphorbiaceae</i>	Adaamii	Bark	Fine powder of pounded bark of <i>Croton macrostachyus</i> is mixed and taken at meal time	Ascaris	Giday, et al. Gebrehiwot M [57,58]
<i>Guizotia scabra</i> (Vis) Chiow	<i>Asteraceae</i>	Hadaa	Root	The root is infused in water solution of <i>Silene macrosele</i> n, and three full cups of coffee is drunk	Taeniasis	Giday, et al. Gebrehiwot M [57,58]
<i>Hagenia abyssinica</i> (Brace) JF Gmel	<i>Rosaceae</i>	Heexoo	Flower	Flowers are crushed, soaked in water for a day and drunk with local beer	Tape Worm	Giday, et al. Gebrehiwot M [57,58]
<i>Lippia adoensis</i> var <i>Adoensis</i> Hochst. ex Walp	<i>Verbanaceae</i>	Kusaayee	Root	Fresh dried root together with the dried bark of <i>Croton macrostachyus</i> is crushed and eaten after breakfast.	Intestinal Parasite	Giday, et al. Gebrehiwot M [57,58]

<i>Podocarpus falcatus</i> (Thunb) R.B Ex Mirb	<i>Podocarpa</i> <i>Ceae</i>	Birbirs	Bark	Decoction of the fine powder of the bark, grounded garlic and honey are pasted and about two tea spoon is eaten at bed time for 3-5 days	Intestinal Parasites	Giday, et al. Gebrehiwot M [57,58]
<i>Rosa abyssinica</i> Lindley	<i>Rosaceae</i>	Goraa	Leaf	Fresh leaf is pounded, mixed with water a cup of the mixture is drunk once.	Ascaris	Giday, et al. Gebrehiwot M [57,58]
<i>Rumex nepalensis</i> Spreng	<i>Polygonac</i> <i>Eae</i>	Shabe	Root	Chew the root and swallow or boil in the water and one glass of the solution is drunk only once	Intestinal Parasites	Giday, et al. Gebrehiwot M [57,58]
<i>Vernonia amygdalina</i> Del	<i>Asteracea</i> <i>E</i>	Ebichaa		Fresh leaves chopped and added to local beer and salt and will be given to the animal	Internal Parasite	Giday, et al. Gebrehiwot M [57,58]
<i>Vicia faba</i> L	<i>Fabaceae</i>	Baaqelaa	Seed	Seeds are soaked in water over night and eaten for three days	Tape Worm	Giday, et al. Gebrehiwot M [57,58]
<i>Croton macrostachyus</i> Del	<i>Euphorbiaceae</i>	Mokkoniis Aa	Bark	Crushing the bark, boiling it & giving one coffee cup for humans & one water glass for livestock to eradicate tapeworm	Tape Worm	Ashagre M [59]
<i>Embelia schimperii</i> Vatke	<i>Myrsinaceae</i>	Haanquu	Seed	Crushing the seeds, making s/n & drinking/ giving one water glass	Tapeworm Infection (Mini)	Ashagre M [59]
<i>Gnidia involucreta</i> Stend ex A. Rich	<i>Thymelaeaceae</i>	Bortoo	Root	Crushing the root, making s/n & drinking one water glass at once.	Gonorrhoea & Ascaris	Ashagre M [59]
<i>Hagenia abyssinica</i> (Bruce) J. F. Gmelin	<i>Rosaceae</i>	Heexo	Leaf, Seed	-----	Pounding The Leaves & Seeds Together, Making S/N & Giving One Water Glass Orally For Cattle. Crushing The Seeds, Making S/N & Giving One Water Glass For Adult Humans	Ashagre M [59]
<i>Haplocoelum foliosum</i> (Hiern) Bullock	<i>Sapindaceae</i>	Canaa	Seed	-----	Chewing A Handful Of Ripened Seeds And Swallowing It.	Ashagre M [59]
<i>Bersama abyssinica</i>	<i>Melanthaceae</i>	Azamir	Leaf, Stem	Dry powder is mixed with water and then drunk	Ascariasis	Amsalu N [60]
<i>Dovyalis abyssinica</i>	<i>Flacourtiaceae</i>	Koshim	Fruits	About 12 fruits consumed daily for 10 consecutive days without water or using its juice.	Abdominal Helminthes, Parasites	Amsalu N [60]
<i>Embelia schimperii</i>	<i>Myrsinaceae</i>	Enkoko	Flower	Crushed, dried, powdered and one cup of powder is mixed with a cup of water, and then drunk.	Constipation, Tapeworm	Amsalu N [60]
<i>Euclea racemosa</i>	<i>Ebenaceae</i>	Dedeho	Leaf	Crushed & mixed with water, decanted & then drunk	Tape Worm	Amsalu N [60]
<i>Euphorbia abyssinica</i>	<i>Ephorbiaceae</i>	Kulkual	Latex	Seven droplets are added in to fresh and heated "Injera" and eaten at early morning without having food for the last over night.	Ascariasis	Amsalu N [60]
<i>Jusminum grandifolium</i>	<i>Oleaceae</i>	Tenbebel	Leaf	One spoonful fine powder is mixed with water and then drunk per day until you get relieve	Tape Worm	Amsalu N [60]
<i>Leonotis ocimifolia</i>	<i>Lamiaceae</i>	Fers Zeng	Whole Part	Crushed, squeezed & drunk	Intestinal - Worms	Amsalu N [60]
<i>Lepidium sativum</i>	<i>Brassicaceae</i>	Feto	Fruit, Leaf	The powder of dried fruits or leaves is mixed with water and honey and drunk ½ liters for 3 days gap until u get.	Tapeworm, Stomach-Ache	Amsalu N [60]
<i>Ranunculus oligocarpus</i>	<i>Ranunculaceae</i>	Tinkushit	Fruit	The fruit is boiled & one cup is drunk before or after food for continuous days.	Tapeworm, Amoebiasis	Amsalu N [60]
<i>Salix mucronata</i> (<i>S. subserata</i>)	<i>Salicaceae</i>	Haya	Leaf	½ cup of leaf powder is mixed with 4 cups of water & drunk for 3 days daily.	Ascariasis, Bloating Belly	Amsalu N [60]
<i>Stephania abyssinica</i>	<i>Menispermaceae</i> <i>E</i>	Shimitiritira/ Etseyesus	Root	Crushed, powdered, & mixed with water and then drunk about one cup	Ascariasis	Amsalu N [60]

<i>Cucurbita Pepo</i>	<i>Cucurbitaceae</i>	Duba	Seed	Roasted, chewing and Swallowed	Tape Worm	Abdurhman N [61]
<i>Hagenia abyssinica</i>	<i>Rosaceae</i>	Habie	Flower	Pounded , mix with "korefe" and drunk	Tape Worm	Abdurhman N [61]
<i>Maesa lanceolata</i>	<i>Myrsinaceae</i>	Saweria	Fruit	Pounded, mixed with "korefe" and drunk	Tape Worm	Abdurhman N [61]
<i>Myrsine africana</i>	<i>Myrsinaceae</i>	Kachamo	Fruit	Pounded, mixed with water and take with porege	Tape Worm	Abdurhman N [61]
<i>Rosa abyssinica</i>	<i>Rosaceae</i>	Kega	Fruit	Pounded, mixed with "correfe" drunk(local alcoholic drink)	Tape Worm	Abdurhman N [61]
<i>Cucurbita pepo L</i>	<i>Cucurbitaceae</i>	Duba	Seed	Seven roasted seeds are taken orally, followed by three hours of fasting	Tapeworm	Araya, et al. [62]
<i>Euphorbia cactus</i> Boiss	<i>Euphorbiaceae</i>	Kolqual Hamat	Latex	Four drops of latex are mixed with sugar solution and taken once before diet	Ascariasis	Araya, et al. [62]
<i>Jasminum grandiflorum</i> L subsp floribundum (R.Br. ex Fresen.) P.S. Green	<i>Oleaceae</i>	Habitselim	Leaf	Leaves are crushed, squeezed and cup of juice with sugar is taken orally	Ascariasis	Araya, et al. [62]
<i>Jasminum grandiflorum</i> L. subsp. floribundum (R.Br. ex Fresen.) P.S. Green	<i>Oleaceae</i>	Habitselim	Leaf	Leaves are crushed, squeezed and cup of juice with sugar is taken orally	Tapeworm	Araya, et al. [62]
<i>Premna oligotricha L</i>	<i>Lamiaceae</i>	Sasa Hadima	Leaf	Leaves are crushed and squeezed and a cup of juice is taken once orally	Ascariasis	Araya, et al. [62]
<i>Maesa lanceolata</i> Forssk	<i>Myrsinaceae</i>	Saira	Seed	Seeds are ground, powder mixed with water and a cup of juice taken orally once	Tapeworm	Araya, et al. [62]
<i>Olea europaea</i> L subsp. Cuspidate (Wall. ex G. Don) Cif.	<i>Oleaceae</i>	Awlie	Leaf	Leaves are crushed, squeezed and a cup of juice taken orally for one day	Ascariasis	Araya, et al. [62]
<i>Oxalis anthelmintica</i> A. Rich	<i>Oxalidaceae</i>	Habachego	Leaf	Patient eats some and remains on diet for next three hours	Tapeworm	Araya, et al. [62]
R. Fernandes & Verdc.	<i>Verbenaceae</i>	Atush	Whole Plant	Plant is crushed, squeezed and juice taken with cup of coffee for three days	Ascariasis	Araya, et al. [62]
<i>Hypoestes forskoolii</i> (Vahl) R. Br	<i>Acanthaceae</i>	Ciikkicho	Leaf	The leaf is pounded, macerated, and drunk	Helminthiases	Tuasha, et al. [63]
<i>Vernonia amygdalina</i> Del	<i>Asteraceae</i>	Hechcho	Leaf	The leaf of <i>Vernonia amygdalina</i> is pounded, macerated, and 1 cup of the preparation is given orally	Febrile Malaria And Helminthiases	Tuasha, et al. [63]
<i>Plectranthus garckeanus</i> (Vatke) J.K. Morton	<i>Lamiaceae</i>	Toontoona	Leaf	The leaf is boiled, filtered, and the liquid is given Orally	Helminthiases	Tuasha, et al. [63]
<i>Phytolacca dodecandra</i> L Herit	<i>Phytolaccaceae</i>	Haraanjicha	Leaf	Pounded, boiled, and taken orally early in the morning	Helminthiases; As A Laxative	Tuasha, et al. [63]
<i>Rumex nervosus</i> Vahl	<i>Polygonaceae</i>	Taare	Root	The root is washed and eaten raw	Intestinal Parasites	Tuasha, et al. [63]
<i>Hagenia abyssinica</i> (Bruce) J.F. Gmel	<i>Rosaceae</i>	So"lchote Dhagga (Qaanqo)	Fruit	The ripe fruit is pounded, decocted, and 1 cup of the preparation is drunk in the morning before breakfast	So"lcho' (Tapeworm)	Tuasha, et al. [63]
<i>Clausena anisata</i> Hook.f. ex Benth	<i>Rutaceae</i>	Hulimay (O)	Leaf	The decocted leaf is drunk.	Ascariasis	Suleman S, Alemu T [64]
<i>Hagenia abyssinica</i> (Bruce) J.F.Gmelin	<i>Rosaceae</i>	Kosso (O)	Flower	The flower is dried, crushed, and boiled in water	Taeniasis	Suleman S, Alemu T [64]
<i>Cucurbita Pepo L</i>	<i>Cucurbitaceae</i>	Buqe (O)	Seed	Seed is roasted and chewed	Taeniasis	Suleman S, Alemu T [64]
<i>Myrsine Africana L</i>	<i>Myrsinaceae</i>	Kechema (O)	Fruit	Fruit powder pasted with niger seed is eaten.	Ascariasis & Taeniasis	Suleman S, Alemu T [64]
<i>Maesa lanceolata</i> Forssk	<i>Myrsinaceae</i>	Abaye (O)	Fruit	The juice of squeezed fruit is drunk	Filariasis	Suleman S, Alemu T [64]
<i>Carissa edulis</i> Vahl	<i>Apocynaceae</i>	Agamsa (O)	Fruit	Fruit is eaten	Ascariasis	Suleman S, Alemu T [64]
<i>Aloe Macrocarpa</i>	-----	-----	Latex	Crushed and filtered some amount of latex was mixed with some amount of water and drunken one coffee cup every morning for 3 consecutive days	Abdominal/ Stomach Parasite	Beyene T [65]

<i>Carica papaya</i>	-----	-----	Fruit	A coffee cup seeds were chewed and swallowed	Amoeba And Other Internal Parasites	Beyene T [65]
<i>Croton macrostachyus</i>	-----	-----	Root	Finger sized root was washed, chewed and take in the fluid part	Stomach Parasite	Beyene T [65]
<i>Cucurbita pepo</i>	-----	-----	Seed	About a coffee cup of seeds were roasted and consumed	Tape Worm	Beyene T [65]
<i>Euphorbia Abyssinica</i>	-----	-----	Latex	1-2 spoon was added to a cup coffee and taken in	Abdominal Parasite	Beyene T [65]
<i>Maytenus senegalensis</i>	-----	-----	Leaf	A bunch of leaves were crushed, mixed with tin cane of water, squeezed, filtered and drunk one tin cane for cattle and half of it for goat and sheep every day for 3 consecutive days	Stomach Parasite (Cattle, Goat, Sheep)	Beyene T [65]
<i>Meriandra Dianthera</i>	-----	-----	Leaf	One handful was crushed, mixed with a beaker of water, filtered, stored in a bottle or pot alone or mixed with a 2 cup of honey for 5 days and drunk half of a coffee cup (child) and two coffee cup (adult) every morning for 5-7 consecutive days	Stomach Parasites	Beyene T [65]
<i>Meriandra Dianthera</i>	-----	-----	Leaf	Handful was crushed, mixed with a beaker of water, filtered and drunk one beaker (adult) or coffee cup (Young) every morning for 3- 5 consecutive days	Tape Worm	Beyene T [65]
<i>Schinus molle</i>	-----	-----	Leaf	Some leaves were crushed, mixed with little water and drunk half of a coffee cup for 3-4 consecutive days	Stomach Parasite	Beyene T [65]
<i>Aloe megalacantha</i> Bark	Aloaceae	Ere	Latex	Squeeze latex, filter and drink	Ascariasis	Teklay, et al. [66]
<i>Clutia abyssinica</i> Jaub. & Spach	Euphorbiaceae	Tewshealalito	Leaf	Crushed and drunk the fluid	Internal Parasites Infection (Livestock)	Teklay, et al. [66]
<i>Euphorbia abyssinica</i> JF Gmel	Euphorbiaceae	Kulqual	Latex	Mix part with locally made beer and drink it or mix it enjera (local food) and eat it	Ascariasis	Teklay, et al. [66]
<i>Hypoestes forskoolii</i> (Vahl) Roem. & Schult.	Acanthaceae	Girbia	Root	Boiling in milk with leaves of <i>Lantana trifolia</i> and drunk	Ascariasis	Teklay, et al. [66]
<i>Otostegia integrifolia</i> Benth	Lamiaceae	Chiendog	Leaf	Crush, filter and drink the fluid	Ascariasis	Teklay, et al. [66]
<i>Solanum mariginatum</i> Lf	Solanaceae	Aby Ungule	Root	Crush by mixing with roots of <i>Zehneria scabra</i> , and <i>Verbena officinalis</i> , filter and drink the fluid	Ascariasis	Teklay, et al. [66]
<i>Ajuga integrifolia</i> Buch-Ham.	Lamiaceae	Endifdif		Crush, filter and drin	Ascariasis Tap Worm	Teklay, et al. [66]
<i>Dovyalis abyssinica</i> (A.Rich.) Warb	Flacourtiaceae	Mengolhats	Fruit	Eat the fruit or drink its juice	Infection Of Amoeba, Tape Worm Or Ascariasis	Teklay, et al. [66]
<i>Euphorbia sp.</i>	Euphorbiaceae	Tekeze	Root	Chew and swallow the fluid	Ascariasis	Teklay, et al. [66]
<i>Ficus vasta</i> Forssk	Moraceae	Daero	Bark	Crush and it with honey	Ascariasis	Teklay, et al. [66]
<i>Hagenia abyssinica</i> (Bruce) J.F. Gmel.	Rosaceae	Habi	Leaf, Fruit And Flower	Crush, filter and drink the fluid alone or with milk	Tape Worm	Teklay, et al. [66]
<i>Lantana trifolia</i> L	. Verbenaceae	Tsameo	Leaf	Boil it with milk or tea and drink	Ascariasis	Teklay, et al. [66]
<i>Merendra bengalensis</i> (Roxb.) Benth.	Lamiaceae	Mesaguh	Leaf	Crush, filter and drunk the fluid	Ascariasis	Teklay, et al. [66]
<i>Oxalis corniculata</i> L	Oxalidaceae	Chew Mirakut	Bulb	Peel the external part and eat it alone or mixed with enjera (local food)	Tap Worm	Teklay, et al. [66]
<i>Rumex abyssinicus</i> Jacq	Polygonaceae	Mequmeqo	Leaf	Crush, filter and drink the fluid	Ascariasis	Teklay, et al. [66]
<i>Rumex nervosus</i> Vahl	Polygonaceae	Hehot	Stem, Leaf	Eat or chew and swallow the fluid	Ascariasis	Teklay, et al. [66]
<i>Verbena officinalis</i> L	Verbenaceae	Atush	Root	Crush it by mixing with roots of <i>Zehneria scabra</i> filter and drink the fluid	Ascariasis	Teklay, et al. [66]
<i>Zehneria scabra</i> (Lf) Sond	Cucurbitaceae	Hafaflo	Root	Crush by mixing it with <i>Verbena officinalis</i> filter and drink the juice	Ascariasis	Teklay, et al. [66]
<i>Glinus lotoides</i> L	Molluginaceae	Meterea	Fruit	Fruit powder mixed with enough water and is taken orally	Tapeworm	Teklehaymanot T, Giday M [67]

<i>Hagenia abyssinica</i> (Bruce) J F. Gmel.	Rosaceae	Kosso	-----	Powder mixed with water and fermented over night is taken orally in the morning	(Tape Worm)	Teklehaymanot T, Giday M [67]
<i>Verbena officinalis</i> L	Verbenaceae	Atuch	Root	Juice of root is taken orally	Wesfat' (Ascaris)	Teklehaymanot T, Giday M [67, 68]
<i>Mucuna melanocarpa</i> Hochst	Papilionaceae	Salabano (M)	Leaf	Leaf ground and mixed with water and drenched that induces diarrhea	For Calf Ascariasis	Tolossa, et al. [69]
<i>Orthosiphon sarmentosus</i> A.J. Paton & Hedge	Lamiaceae	Zititu (A)	Leaf	Leaf chopped, soaked in water and a glass full filtrate drunken	Ascariasis	Tolossa, et al. [69]
<i>Justicia schimperiana</i> (Hochst.ex A. Nees) T.Anders	Acanthaceae	Sensel	Leaf	Crushed fresh/dry leaves is concocted with bark of s is taken orally for three days	Intestinal Parasites	Bekele, G, Reddy PR. [70]
<i>Carduus leptacanthus</i> Fresen.	Asteraceae	Guccino	Stem	Powdered dry stem mixed with butter is taken with coffee or tea.	Ascariasis	Bekele, G, Reddy PR. [70]
<i>Lepidium Sativum</i> L	Brassicaceae	Feaxxo	Seed	Dry seed powder is taken as with coffee as drink	Intestinal Parasites	Bekele, G, Reddy PR. [70]
<i>Hagenia Abyssinica</i> (Bruce.) J. F. Gmel	Rosaceae	Kosso	Fruits	Crushed dry fruits mix the powder with honey and a little bit of water and then boil and drink before breakfast for five days	Ascariasis	Bekele, G, Reddy PR. [70]
<i>Hagenia Abyssinica</i> (Bruce.) J. F. Gmel	Rosaceae	Kosso	Fruit	Crushed dry fruit , mix the powder with local 'tella' and leave for overnight and drink before breakfast for three days	Intestinal Worms	Bekele, G, Reddy PR. [70]
<i>Prunus africana</i> (Hook.F.) Kalkam	Rosaceae	'Sukke'	Root	Crushed dry root bark mixed with water is taken as a drink	Ascariasis	Bekele, G, Reddy PR. [70]
<i>Embelia schimperi</i> Vatke	Myrsinaceae	-----	Fruit	-----	Tape Worm	Zerabruk S, Yirga G [71,72]
<i>Hagenia abyssinica</i> Bruce	Rosaceae	-----	Leaf	with water	Tape Worm	Zenebe, et al. Zerabruk, S, Yirga, G [71, 72]
<i>Dodonaea angustifolia</i> Linn	Sapindaceae	-----	Leaf	with salt	Tape Worm	Zenebe, et al. Zerabruk, S, Yirga, G [71, 72]
<i>Myrsine africana</i> Linn	Myrsinaceae	-----	Seed	Injera	Tape Warm	Zenebe, et al. Zerabruk, S, Yirga, G [71, 72]

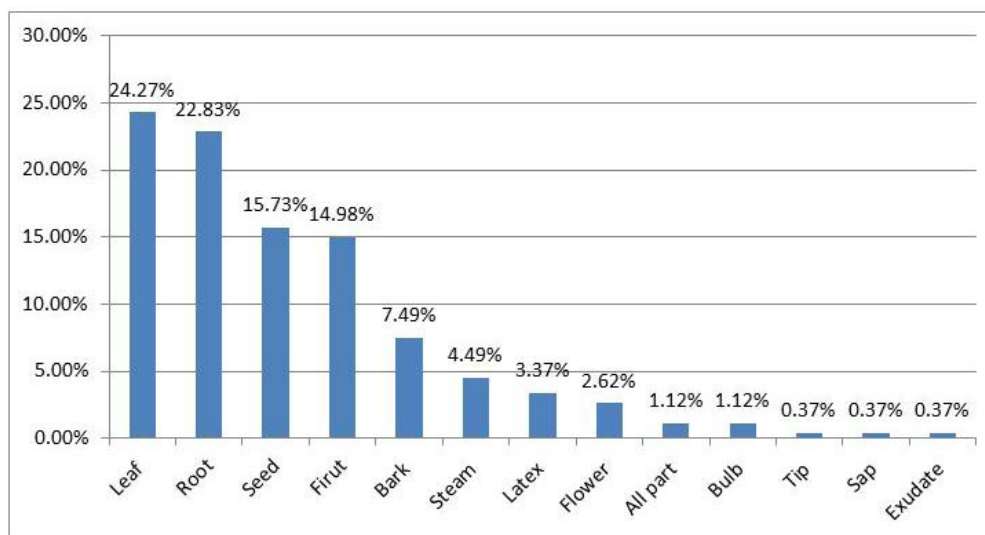


Figure 1: Ethiopian traditional medicinal plants and their parts apply for the preparation of medicinal remedies.

anti-helminthic effect well summarized by the family of plant, species of the plants, local name, preparation of plants, and treating helminthic disease. A total of 343 medicinal plants with 13 different plant parts uses for preparation and treating different human helminthic and parasitic infections find out in this resented review.

Furthermore, our review revealed that Ethiopian medicinal plants are used as an alternative medicine for treating a range of parasitic infections such as malaria, hook worm, filariasis, tape worm, ascariasis, and intestinal warm are some of the major parasitic and helminthic diseases treated by the community and herbalists. Although, the

majority of plant parts used to treat human parasitic and helminthic infection were Leaf (24.27%), root (22.83%), followed by seed (15.73%). Bulb and exudates cover list rank and account 1.12% and 0.37% respectively from the total plant parts use Figure 1.

Unfortunately, Traditional medicine practitioner in Ethiopia applies different techniques of plant preparation like concoction, drying, crushing, and dedoction. However, in this review, the most dominant way of preparation of herbal remedies was preparation with water (38.50%) and coffee and tea (10.40%) (Figure 2). Intestinal helminthic and parasitic (33.71%) and Ascariasis (32.95%) diseases

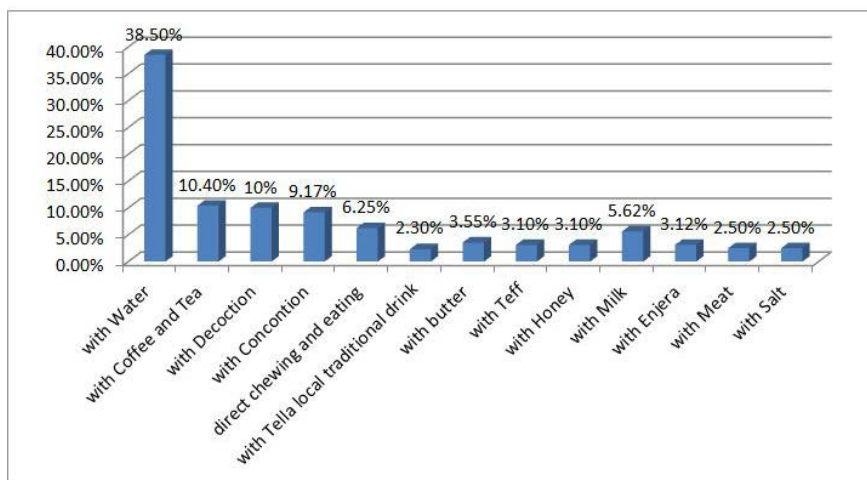


Figure 2: Components used to assemble herbal treatment for treat human helminthic and parasitic infection.

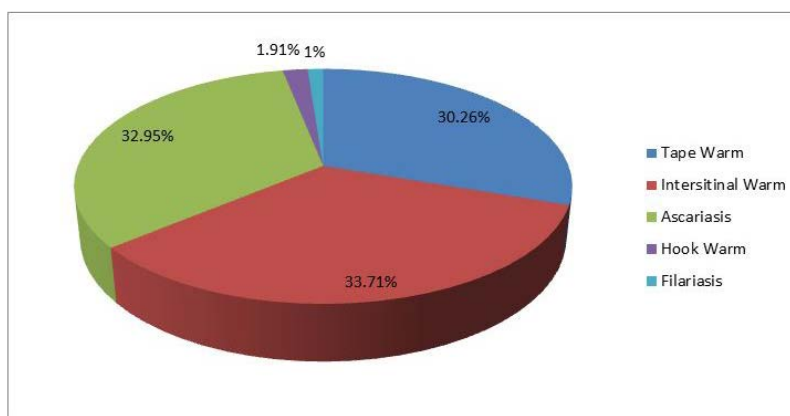


Figure 3: Proportion of helminthic and parasitic disease managed traditionally through Ethiopian traditional medicinal plants.

were identified to be that can be treated empirically when the disease is encountered in human hosts. Also, hook worm and filariasis parasitic diseases listed in Figure 3 are the list disease traditionally treated by the herbalists and community through using different types of medicinal plants.

Conclusion

In this presented review, a total of 343 medicinal plants have been identified and recorded for their use to treat a range of human helminthic and parasitic infections in Ethiopia. The majority of plants portion usually used by herbalists and the people was a leaf. Nevertheless, most of these medicinal plants are widely applied in different areas of Ethiopia; the majority of medicinal plants and medicinal information regarding scientifically and experimental (reverse pharmacology) on their safety and efficacy are not well understood. Therefore, it is over-emphasized for the researcher to conduct a wide range of research on safety and efficacy studies of the traditionally claimed herbs with giving attention to certain human helminthic and parasitic diseases that already develop drug resistance.

Abbreviation

NTD:	Neglected tropical disease
STH:	Soil transmitted helments
VL:	Visceral leishmaniasis

CL:	Cutaneous leishmaniasis
MCL:	Mucocutaneous leishmaniasis
PKDL:	Post kalazar disease leishmaniasis
WHO:	World health organization
LF:	Lymphatic filariasis
HIV:	Human immune virus
TM:	Traditional medicine

Conflict of interest

None

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